



Fintech and Entrepreneurial Finance: what's coming next?

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ABSTRACT

Fintech is a developing sector, due to the technological innovations and its importance in the economy because it is changing the way in which firms realize its business plans. Its evolution started as a result of the Global Financial Crisis in the United States and was in that country where started its advancement. Subsequently, its expansion was mainly to Europe and Asia. In addition, the sector is in continuous development as a result of the changes in the economy and the effect of globalization. This practice is related to the entrepreneurial activity and customers can use different alternatives to achieve its financial projects. As a result of the rapid development of the sector and its consequences for the economy, regulation is becoming a global issue. To control the activity of firms in its countries, United Kingdom created the Financial Conduct Authority (FCA) and the United States the Securities and Exchange Commission (SEC). In addition, it is necessary highlight the impact of the banking sector as a result of the development of technology and the use of Internet. As a result of Fintech's evolution evolved and the future trends await more development of the sector.

1. INTRODUCTION

The financial technology, known as Fintech, is characteristic of those firms whose objective is to offer new financial assistance or to increase the value of the existing services, to gain transparency in the market and to use technology to provide best financial solutions to customers. Between other targets are to digitize the financial sector, to reduce firm's costs and to create new ways of work and products.

Kalmykova and Ryabova (2016), highlight that within this field of study, most of the research carried out is very recent. In addition, due to the continuous development of the sector, regulation can prove problematic. For this reason, regulation is becoming a topic of interest for a significant majority of countries worldwide. To overcome regulatory issues, more countries are creating specialized institutions to monitor and control companies in financial markets, such as, the Financial Conduct Authority (FCA) in the United Kingdom or the Securities and Exchange Commission (SEC) in the United States of America.

As a result, new ways of financing different than traditional banking have emerged in recent years. These are carried out by different individuals whose objective is to apply the technology to achieve its development. Among others, the most important are Crowdfunding, Peer to Peer or Venture Capital. Although its origin was in United States, gradually its expansion has finally become increasingly popular in Europe and Asia.

In addition, Soulé (2016) and Kalmykova and Ryabova (2016), explains that nowadays there are different capitals of financial technologies (Fintech). Some examples of cities where we can find it are San Francisco, Shanghai, London and New York. These studies explain the situation in the European Zone, reason why it is important to mention that since 2015 London has received at least 50% of European Fintech investment due to the number of innovations and investments made. The reasons are because the United Kingdom has an intensive structure, a verifiable fiscal system, a legal literacy framework and support for investment in the country.

According to Románova and Kudinska (2016), nowadays the use of technologies has changed the majority of the sectors, but has especially affected to the banking business. All these modifications alter the business perspective and the entrepreneurship becomes more used and popular.

The field of study will describe in a general way the expansion of Fintech focusing on Europe. It will also explain the factors that have most affected Asia and the United States to create an extensive overview for the reader of the evolution of the sector. Among the goals are to explain the current situation and future trends in financial technology and how they can affect the evolution of the economy. In addition, the use of tablets and electronic devices favors the expansion of the sector reason why Fintech development is becoming very popular.

Therefore, this creates a motivation to investigate about this sector. Besides this, the future trends and expansion of Fintech and its influences are having and will have an important relevance in the way of working of the companies and also in the economy because the magnitude of its impact is significant. It is also important to mention that Internet gives access to the customers to buy everything in the market. Fintech, represents the evolution of the economy as a result of globalization and its objective is to help the customer using the data but also providing new possibilities, and companies to reduce costs.

The aim of this work is to gain a deeper understanding of how technology affects finance. As was explained before, Fintech is related to finance, technology and entrepreneurship. Nowadays, the importance of Fintech in the economy is relevant because this way of entrepreneurship is changing the direction in which firms are operating in the market. As a result of its importance, the sector underwent a remarkable evolution having three different phases: Fintech 1.0, 2.0 and 3.0. As a

result of being related to the technology, this type of companies has regarded the digitization of the sector using Internet for it. Subsequently, the Global Financial Crisis favoured entrepreneurship appearing new ways of financing such as crowdfunding or venture capital between others. The main reason of its increase was that banks did not want to leave money borrowed because of the risk in the evolution of the economy. These clearly affected the sector and favour the expansion of Fintech. In addition, another objective of this work is take into account the importance of regulation which is becoming a global issue. Finally, will be analysed the future trends and the expectations for the future.

In addition, the banking sector was affected by the evolution of technology. The relation between financing and technology leads to modernization, productivity growth and efficiency in companies which mean saving money. This work will include a review of changes in financing trends in order to achieve a financing model in which firms do not rely only on banks. It is also relevant to explain the diverse factors that influenced the population and when the greatest development of the sector began.

To elaborate this work, I have basically used primary sources, such as, academic articles, books, websites and reports from different entities which show the reality of the analysed sector and its future prospects in both Spanish and English languages. In addition, I have read newspaper opinion articles and have investigated about the evolution of the Fintech sector and which countries have experienced a more significant development.

The remainder of this study is organized as follows. Section 2 explains the connections between the economic origin of Fintech and the Global Financial Crisis, additionally an analysis of the consequences of the Spanish Banking System leading to the development of financial technology and entrepreneurship. Section 3 describes the Fintech phenomenon and the entrepreneurship practice by establishing connections with the Global Economy. In the section 4, the legal framework and the difficulties that exist nowadays as a consequence of the speed of progress of the sector due to technology and its impact in the society is explained. Section 5 outlines the way in which the traditional banking system is affected by the evolution of Fintech and digitalization of the sector. Section 6 discusses the emerging future trends and challenges of Fintech sector. Section 7 presents the final discussion and conclusions of this essay.

2. BACKGROUND AND THE ECONOMIC ORIGIN OF FINTECH

2.1. GLOBAL FINANCIAL CRISIS

According to Brunnermeier, to understand the evolution of the financial sector and its development in the present, it is important to take into account the causes and effects of the Global Financial Crisis (GFC) of 2007 and to understand the context of the situation. Due to this fact, the application of technology in finance began and then increased. The origin took place in the United States and its positive impact generated the expansion to Europe and Asia. This was a direct consequence of the Global Financial Crisis and its effects on the population because in those years' banks did not want to borrow money. That is why the section will analyse the effects of the Global Financial Crisis.

The Crisis commencement was in the United States and then moved to Europe. The most affected countries were those that were located in the South of Europe because they are characterized for being more fragile economically. These groups of states are known as PIIGS and are Portugal, Italy, Ireland, Greece and Spain.

This work departs from the study by Véron (2007), which shares the importance of banks in the European Union. This sector accounts for almost a quarter of the aggregate market capitalisation of Europe's 100 largest listed firms, which means the 24% of the capitalisation market.

From 1999 to 2007, the economy grew at a high rate thanks to domestic demand that produced that prices increased and the interest rates decreased. This demand was satisfied with foreign products, a fact that caused that the debt of these countries increased in relation to the other European members. This situation generated a debt with the rest of the foreign countries that was financed by the Euro Zone. The European Central Bank gave much money, mainly to the Spanish and Irish banks, which invested the great majority in buildings, instead of increasing the capital of the National Banks. This fact generated two different problems. On the one hand, buildings are products that cannot be exported and are paid by customers in the long term while the national debt had to be paid in the middle term. This is why the Housing Bubble was produced. On the other hand, this situation generated an increase in leverage, with consequences such as the rise in the amount of credit to the population and the fall in capital investment. This led to an increase of the operational risks due to the exposure to insolvency.

Véron (2007), put emphasis on explain that the financial institutions are heavily regulated and this directly affects their systemic risks. The increase in leverage allows escalating the potential profit but the losses too. It must be considered that the debt is a fixed obligation which must be faced regardless of the result of operation. To reduce the risks of increased leverage, the banks started to perform securitization operations and trading of credit default swaps. The reason is that this type of operations allows to throw the riskiest assets of the balance.

To cope with the population's credit demands before the Crisis, financial institutions borrowed money in short term to leave it in long term. These types of actions are risky because a long term in liquidity means dealing with a higher risk of repayment of long term loans. For this reason, banks must offer guarantees to the Institutions, such as, the Central Bank.

The functionality of the credit market is important as a result of the relation of this market with commercial activities, consumption and investment. The influence of these components is considerable in the labour market. When the situation started to go wrong, the number of layoffs increased and uncertainty about the future increased too. The higher indebtedness and the fear of losing employments, dropped consumption, which directly affected employment. All these factors led companies to decide to reduce their prices and costs in order to maintain sales. The emergence of these situations contributes to the expansion of Fintech. This type of firms has the intention of reduce costs and arrive to many customers through Internet. To achieve the above objective, the Fintech sector attaches a financial value to the digitalization of the economy.

Another factor that has also contributed to complicate the situation was the fact that in those years the cost of borrowing money was lower. Furthermore, interest rates were lower during this period, which caused an increase of consumption, investment and better expectations for the future revenues of firms. For all these reasons, people were not worried about the situation but finally all these components caused the Housing Bubble and later the Economic Crisis with its consequences. As a result of lower interest rates, increased consumption and investments and expectations of the future became better, fact which produced worst effects as a result of the Economic.

In addition, one of the main effects of the Housing Bubble was the high unemployment rate. As it was said before, unemployment affected to the domestic demand leading to

a reduction in sales, reason why companies could not pay to their employers and this situation produced a lots of dismissals. This circumstance mainly affected to Italy, Greece, Ireland, Spain and Portugal so the European Central Bank has been investing a lot of money to make the situation better.

Subsequently to the Global Financial Crisis, the European Central Bank started to apply a monetary policy in order to maintain stability through interest rates. In addition, the governments of the most affected countries made use of the contractive monetary policies to preserve the level of prices and to reduce the economic deficit.

However, this measure had negative effects on the Gross Domestic Product even though the objective was to protect the economy and to avoid the effects to the population.

It is important to mention that the magnitude and extent of the Crisis could have been reduced if more controls and measures had been applied. The financial sector was in process of deregulation and therefore governments and Institutions were responsible for the worsening situation. While the first ones began the process of deregulation justified by the conviction that the market could be regulated by itself, the second ones amplified the situation by offering low interest rates to the population. As well as, the existence of failures of supervision and control from the economic authorities and organism's supervisors. The lateness in reacting and recognizing the existence of the Global Financial Crisis created difficulties to identify if it was a liquidity or solvency crisis. Regarding to control, there was demonstrated that the Basilea Principles were not applied in a good way on banks.

Rodríguez de Codes Elorriaga (2010), explains that after the Economic Crisis, Basilea II and Basilea III Principles were created, increasing the number of controls and credit requirements, market and operational risks to calculate the regulatory capital with the objective of increasing solvency. To calculate the regulatory capital, Basilea II defines the amount of capital that entities must have to confront to unexpected losses. This amount must be higher than 8% of its own capital. These are events with low probability, but they could happen, so banks need to have enough capital to cover them. For that reason, the regulatory capital guides the Financial Institutions to know the minimum amount of capital that they should have.

According to Aranciabia (2015) and Valls (2016), it is important to show the 2016 Stress Test of the most powerful European Banks. The objective is to understand the situation of the economy and how it affects the uncertainty. The table below, samples the Common Equity Tier 1, known as, CET1, indicator which is related to the book value capital. It is compound of the ordinary equity and retained earnings. In addition, the European Central Bank is demanding more transparency to the economies so the entities must communicate to the markets the information related to this ratio.

Figure 1: COMPARISON OF CET1 BETWEEN BANNKS OF DIFFERENT COUNTRIES

COUNTRY	BANK NAME	CET1
GERMANY	NRW BANK	42.5%
HOLAND	BNG BANK	26.2%
SWEDEN	SWEDBANK	25.1%
FINLAND	OP-POHJOLA	19.2%
FRANCE	CRÉDIT MUTUEL	15.5%
BELGIUM	BELFIUS BANQUE	14.6%
NORWAY	DNB BANK	14.2%
UNITED KINGDOM	LLOYDS	13%
ITALY	INTENSA SANPAOLO	12.5%
SPAIN	SABADELL	11.7%

Source: Own elaboration from Valls (2016).

The banking sector is important because if it works in the right way, the economy does too. The objective of raising the CET1 is because if any bank increases its resistance, the system runs the risk of decreasing and the economy improves. Figure 1, represents a small sample of Banks from different countries where the best position is for Germany and one of the worst for Spain. Here, we can see reflected the impact of the Economic Crisis of a few years ago.

In 2008 the fall of Lehman Brothers, produced the geographical expansion of the GFC to other sectors of the economy. This fact affected the development of economies that were in development as well as the emerging economies, increasing the perception of risks, which impacted the financial markets.

The European Central Bank increased the monetary offer to purchase private debt. To achieve this objective, an unlimited quantity of liquidity was given by offering low interest rates to refinance the system and to increase the amount of money in

circulation, trying to avoid the drop in private consumption and economic activity.

2.2. CONSEQUENCES IN THE SPANISH BANKING SYSTEM

The economic crisis of 2007 caused many changes in the European banking system. This section will focus on the evolution of the Spanish banks because it was one of the most affected countries by the Economic Crisis. The evolution of the Fintech sector in that country will also be explained. One of the reasons is related to political influence, which had a significant relevance in the economic situation due to the banks. In many times, this control was taken by politicians who have not got specific knowledge of economy or finance and used their influences to carry out projects with political aims. Around 1990 there was a deregulation of the sector which favoured the control of these companies by the regional governments. The objective of deregulation was to increase competition to improve efficiency and solvency but finally these measures were not positively related.

Some of the Spanish entities had a significant political control and in some of them this affected solvency. For example, the Caja de Ahorros y M.P de Madrid has a significant political influence and this affected directly to its efficiency and solvency. Among others, the most affected are the Caja de Ahorros del Mediterráneo or Caixa d'Estalvis de Tarragona or the Caixa d'Estalvis de Barcelona (Pina *et al.*, 2016).

In relation to the mergers, we must highlight that one made between Popular and Santander in 2017 and Bancaja and Bankia in 2013. Among the reasons are the low profitability of the entities separately due to the lack of size and the obligation to quote. This generates instability in the market and effect directly to investments. As was mentioned before all these reasons favour the expansion of Fintech.

Figure 2: MAP OF SPANISH FINTECH



Source: Moveerang (2017).

According to Mooverang (2017), the Spanish Fintech sector is in development. As is shown in the map the regions in which the sector is most developed during 2017 are Madrid, Barcelona and Valencia and the difference between them is significant. In comparison to other parts of Spain, the sector does not have too much strength. The expansion of this type of companies is in big cities in which exist business centres and in which are located multinational firms. Among other the most important Spanish Fintech firms are Kreditech, Inveslar, Lendix, iAhorro or Moneymatic.

3. FINTECH AND ENTREPRENEURSHIP

Referring to E. Kalmykova and A. Ryabova (2016), Prashantham (2017) and J. Block, *et al.* (2016) entrepreneurial finance is defined as the ability to perform a business idea, organize and manage it, considering its risks in order to make profits. The entrepreneurial finance is characterized by the combination between innovation, labour and risk. At the moment that companies have problems to develop their objectives in business plans, entrepreneurial finance begins because the managers must investigate other alternatives to evolve their projects. It should be noted that the goal of entrepreneurs is to be competitive in an increasingly competitive market in which there are uncertainties such as, asymmetric information, difficulties to access to financing or agency problems.

Related to its appearance, the most important reasons are, among others, the improvement of technology and its application in business area, changes in business requirements and product markets, cost reduction, globalization and finally regulatory changes. Usually this type of financing is used by firms that want to innovate, such as start-ups or emerging with the objective of achieving long-term internationalization. In addition, there are new alternatives of financing which promote entrepreneurship. One of them is the entrepreneurial finance which is changing nowadays because entrepreneurs are combining traditional debt and equity start-up finance.

In addition, according to Prashantham (2017), the most important reasons for developing this process in *emerging countries* are the immaturity of the entrepreneurial system, the opportunities that exist in emerging markets and the lower costs to carry out the activities of the firm. These countries are waiting for an economic development and governments are developing policy measures to achieve these objectives, but in

many places there are reputational factors and the perception that these services are unnecessary.

In order to achieve these objectives, multinationals work with the population of these countries because there is a deficit in knowledge and to provide some hand-holding and technical know-how. Moreover, these companies invest money in original technologies and emerging markets are attractive because of the large size of the market and the lower costs.

The use and utilization of technology and innovation in firms means more modernization, productivity, creation of new jobs and production for companies. Obviously these factors have an important impact on investment, but we will first discuss about globalization, to provide context and background information. According to Das (2010), from an economic perspective, *globalization* represents the process of increasing the international division of labour and growing integration through trade, capital flows and investment. For that reason, due to globalization it is necessary to achieve greater connectivity because every important directly affects all markets and this is where Internet plays an important role. By the way, to achieve the objective of growing and increasing benefits, multinationals should move part of their trade to emerging markets, such as, India, Africa or China. The strategy is to create start-ups to carry out part of their activities in those countries.

To continue, it is important to describe the concept of *Financial Technology*. Jesús Pérez, president of the Spanish Association of Fintech and Insurtech, explains Fintech as a new concept which tries to define those firms that try to burst in the traditional way of understanding the financial services by the use of the technology. The aim is to offer new financial assistance or increase the value of existing services, gain transparency in the market and use the technology to provide the best financial solutions. Other objectives include digitizing the financial sector and creating new forms of work and products.

As a result, are appearing new alternatives of financing which promote entrepreneurship. As Bruton, Khavul *et al.* (2015), explains the entrepreneurial finance is changing nowadays because entrepreneurs are combining traditional debt and equity start-up finance. More often, the new financial alternatives use Internet platforms to aggregate small individual transactions and to improve the efficiency are using social

networks. The more usual are Crowdfunding, Peer-to-Peer Capital and Venture Capital.

In addition, technology plays an important role in the development of these new methods of financing and boosting entrepreneurship. The objective is to make borders more permeable to increase the diffusion of innovations. To achieve this, it is necessary to make changes in regulation, but this will be explained in section 4. The financial technologies have changed the way in which the traditional banking understood its activity and they started for years to offer financial services.

Figure 3: TYPES OF FINTECH



Source: Own elaboration from KPMG consultants (2016).

The way in which firms practise the entrepreneurial finance is creating start-ups, unicorns or GAFAs. Figure 3 represents the logo of the different types of Fintech that are going to be analysed. As Prashantham (2017) relates, a *start-up* is a type of firm whose objective is to start a business activity linked with innovation, Internet or technology. Also, they are characterized because in general these types of companies have a creative business plan, fact that differentiates them. In addition, most of the time they are young firms, which in other words means that they are growing in the market, their human organization has great capacity for change, they develop products or services in different ways and applying innovations, with the objective of reducing costs, their design and commercialization are completely orientated to customers and they use Internet as a way of come forward.

In relation to financing, the current situation with the low interest rate favours that this type of firms has unlimited funding. This fact determines their sustainability in the medium term but sometimes investors do not want to spend money on companies which operate in the financial sector and obviously because of the financial uncertainties.

According to Románova and Kudinska (2016), these types of companies provide services using social networks and carry out activities that were traditionally done by banks. For this reason, Fintech start-ups are at the vanguard of the future industry and in the recent future will suppose a threat to the banking system that we know nowadays. Figure 4 represents the Fintech landscape in 2017 and tries to show the amplitude of the sector.

Figure 4: FINTECH LANDSCAPE



Source: Everis Digital (2017).

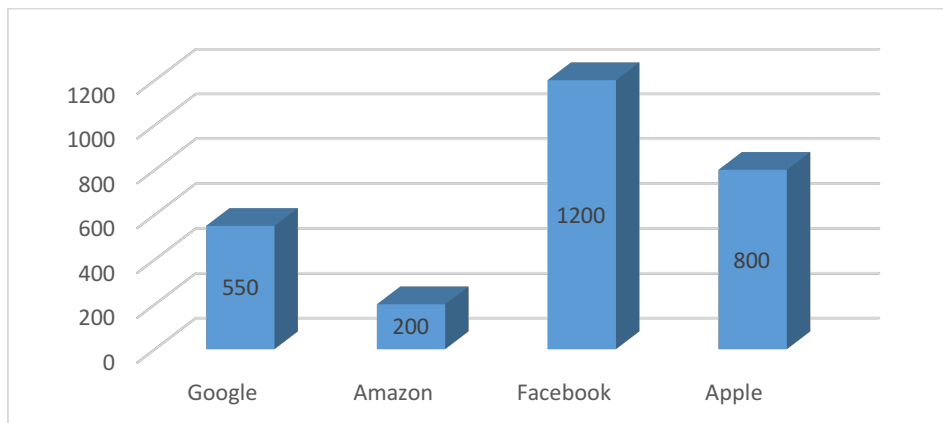
According to Minsait by Indra (2016), *Unicorns* are those types of companies whose theoretical value is higher than 1.000 million US Dollars. Its valuation is calculated using the different rounds of financing in which investments participate. The price of the Unicorns is based on a very high percentage of the speculation associated with their expectations of future growth and profitability and their business model is related to achieve a big amount of customers and in the future this type of companies will have regulation in order to control their actuaciones.

Also one important feature is that they do not work in trade markets. This generates a problem with the transparency of the information and to control the exact amount of

their cash-flow. The difficulties in valuation were shown in 2012, when Evernote became the first company to acquire the status of Unicorn and immediately announced its intention to invest in the trade market. In 2015 the dismissal of their employees began and after that the managers recognized that they were unable to establish a business model with revenues because of the type of firm and how to calculate the real value of the firm.

The third modality is known as *GAFAs* and it is an acronym of Google, Amazon, Facebook and Apple. These companies were the revolutionaries of the stage “.com”. Nowadays, they are digital monopolies and are recognized as *GAFAnomics* as a new way of understanding finance. Its activity in the financial sector is related to those areas where traditional banking does not arrive and they do not obtain enough revenues because its process is outdated. Their technological capacity has made them consolidate in the market: Google and Facebook in data and Apple in payments. All this type of measures creates value in the sector. The graph below shows the number of millions of users around the world of Google, Amazon, Facebook and Apple in 2016. This confirms the real influence that these firms have on the economy and society. Also, the *GAFAs* firms have fewer limitations to obtain the data because they generated them. For that motive, they are real threats for the actual business model. The regulation is important too because this type of companies in the future will be systemic financial entities.

Figure 5: MILLIONS OF USERS AROUND THE WORLD



Own elaboration using the data provided by Minsait by Indra (2016).

The intention is to demonstrate graphically the real influence of this type of companies and the real scope that they have in the population. Although Facebook is by far the company with more registered users, the influence of the others is significant. The

reason is the ease of reaching people and the facilities to be connected and make your business known. This is why these firms control more than the 50% of the average digital journey.

To recover their position, banks create Blockchain, a platform that uses technology to offer its customers a better financial system. This platform is analysed in the part of the work related to how Fintech affect to the traditional banking system (Section 5).

3.1. MECHANISMS TO OBTAIN FUNDS BY FIRMS

Our study for this section departs from Block *et al.* (2016). First of all, it is important to mention that the new players present in the market differentiate between financial and non-financial goals. Nowadays, *non-financial goals* are relevant because these are different ways of value the impact of entrepreneurial financing and because have added a provision of value to services. Among others there are *social goals* in social venture funds, political goals in government sponsored funds or technological goals in corporate venture capital.

Regarding to the emergence of the sector, there is an increasing variety of *investment goals* and approaches which favour the expansion of the sector. Consequently, are going to be explained the most important ways of financing nowadays.

- The *accelerators and incubators* are characterized for being associations whose objective is to help start-ups with mentorship, advice or giving physical space and financial sources. There are different types of accelerators depending on the type of industry and services offered to the customers. Nowadays they are favouring the expansion of the Fintech sector.
- In relation to *angel networks* it is important to highlight that they support equity and business. In addition, they work as a group so they can give more financial support.
- *Crowdfunding* uses internet to get money from different people to support one particular project. There are distinct ways of crowdfunding: One of them is the donation, which is characterized by being carried out by non-governmental associations or private associations. The main objective of the donations is related to charity projects.

On the other hand, *lending-based crowdfunding* offers an interest rate on the money received as a counter-benefit to the contributions received. The interest rate is commonly known as the "price of money" and in this type of crowdfunding the receiver of the financing must return the money received plus a certain interest rate.

Next one is the *equity based in crowdfunding*, which gives an action or participation of a company or commitments on its benefits, as a counter-contribution to the contributions received. The person who contributes is usually referred to as an investor or a micro-investor

The last one is the *reward crowdfunding*. It is characterized because offers a reward as a counter-contribution to the contributions received. It is the type of crowdfunding that leads the market in revenue volume and the rewards are products or services (artistic, cultural, or business). Experiences are often offered that will make patrons collaborate as part of the funded project.

- *Corporate venture capital*, known as CVC, is related to the participation in start-ups or consolidated companies, as well as in firms of the same group or outside them. It involves participation in new businesses that are beyond the control of the investment company. This practice is done by Google, Intel or Johnson&Johnson.

3.2. AREAS OF THE FINTECH

According Arner *et al.* (2016), nowadays exists five different areas in which Fintech industry. There are the finance and investment, internal financial operations and risk management, payments and infrastructure, data security and monetisation and customer interface.

- **FINANCE AND INVESTMENT:** In this category is important to highlight the importance of Crowdfunding or Venture Capital that were explained in Mechanisms to obtain funds from firms.
- **INTERNAL FINANCIAL OPERATIONS AND RISKS MANAGEMENT:** These have been the nucleus of drivers of IT consuming by financial institutions, as they have constructed better compliance systems.

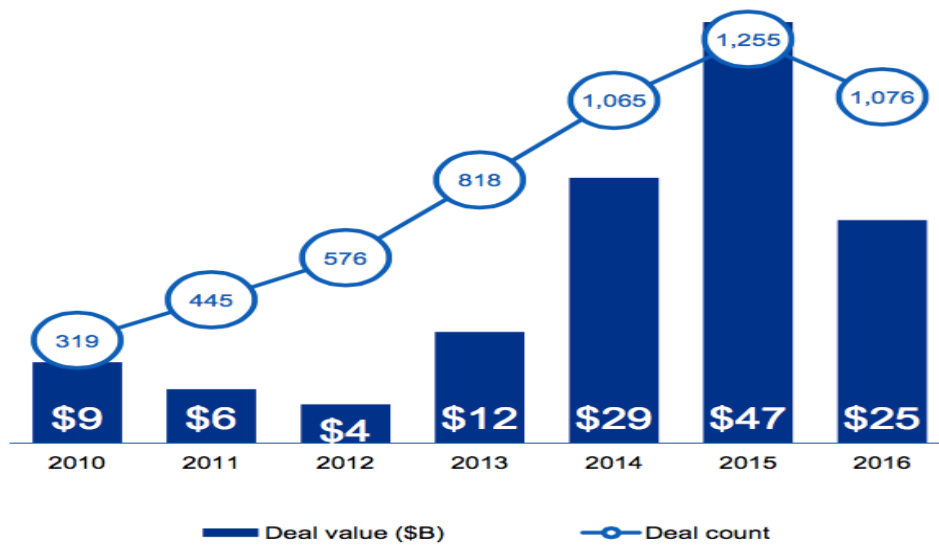
- **PAYMENTS AND INFRASTRUCTURE:** Payments are related to the regulatory area since 1970. It is important to mention the existence of cross-border electronic payment systems and the Over the counter (OTC) derivative trading central to disintermediate traditional institutions. In mobile payments it is important to highlight PayPal or Set Pay companies.
- **DATA SECURITY AND MONETISATION:** Although financial technology uses a large amount of data to innovate, improve efficiency and protect the sector is exposed to cybercrime and espionage by digitisation. Some examples of famous firms are TransferWise, WorldRemit or Kantox.
- **CUSTOMER INTERFACE:** It is related to the competition with the traditional banking sector, specifically with the leverage of the financial products.

3.3. INVESTMENT IN FINTECH

In relation to investment, it is important to mention some of the factors that most affect today's economy. Among others, the most relevant are the election of Trump as a president from the United States, the variation of the exchange rates, the exit of the United Kingdom from the European Union and the slowdown of the Chinese economy. This influences the way in which investors decide to spend their money and as a consequence affects the economy and consumers. For those reasons and uncertainty in 2016 the amount invested in the sector fell down.

The influence is shown for example in *Mergers and Acquisitions and Private Equity*. The first concept, M&A is related to the business area, specifically with Corporate Finance. On the other hand, PE is constituted by funds from public and private companies and is invested in technology, to make new acquisitions or to solidify the balance of a particular company. According to KPMG consultants, investment of M&A fell to \$34 billion to \$11 billion in 2016 and PE went from \$18 to \$11 billion. These data show the evolution of the investment in Fintech companies as a result of the changeability of the economy.

Figure 6: TOTAL GLOBAL INVESTMENT IN FINTECH COMPANIES (2010-2016)



Source: KPMG Consultants (2017).

Figure 6 shows the total global investment in Fintech companies from 2010 to 2016. As it is demonstrating, the sector analysed started its strong development in 2010 as a result of the bad management of banks and lack of opportunities to entrepreneurship. Its increase was in the quantity of deals and invests. During 2015 and 2016 the sector continued in development but the uncertainty of the markets made that the amount invested reduced by \$22 billion dollars. This means that the Fintech sector is becoming mature in some of its areas.

Figure 7: MONEY FLOWING INTO FINTECH START-UPS



Source: Accenture and CB insights (2014).

In relation to the investment by continents, *North America* is the first country and United States in particular is the most important investor in this type of firms. As it is shown in Figure 7, every year since 2008 to 2013 the amount increases in every country highlighting its importance in Europe and Asia. According to Indra (2016), the reason is that the governments of the different countries understand the importance of the development of this sector and its impact in the growth of the economy. In 2016, US Fintech firms received 12.8 billion dollars to invest. To complete the innovation process, Fintech companies need to increase its amount of cash-flow and banks need to modernize to stay at the same level. Between others, the most important are Moneris Solutions, Reval and Payoneer.

In those years *Europe* became the fastest growing continent. The development of the sector was related to the necessity of credit because of the Global Financial Crisis. In 2016, the investment in this type of firms was of 2.2 billion dollars. The reason was because part of the population needed small loans that are not attractive to banks because they support the risks to achieve low profitability. To quantify the effect in the sector, in 2014, the growth of investment in the sector amounted 215%.

It is also relevant the influence of United Kingdom, which pushes the banking licence which has allowed that some Fintech operate in the market as a real digital banks, such as, the Atom Bank or the Charter Savings Bank. Kalmykova and Ryabova (2016), explains that for these types of measures, London is in these days the main global hub of Fintech companies and according to Soulé (2016) receives 50% of the European investment in financial technology companies. As was mentioned before, the importance of United Kingdom is between others its intensive structure and investment support in the country to these new alternatives. Between others, the most important European Fintech's firms are Iwoca, CFG Group or BillFront.

In addition, Indra (2016) put emphasis on *Asia* which also experimented an increase of the amount invested in Fintech's companies due to the investment of the Chinese buoy of mega-rounds that increase the amount spent on venture capital, the potentiality existed in India and because Singapore is one of the Fintech centres. Although Europe is the most growing continent, in 2016 the amount invested in Asia was of 8.6 billion dollars. The most important Fintech's are 51credit, QuantGroup or Asian Gateway Investments.

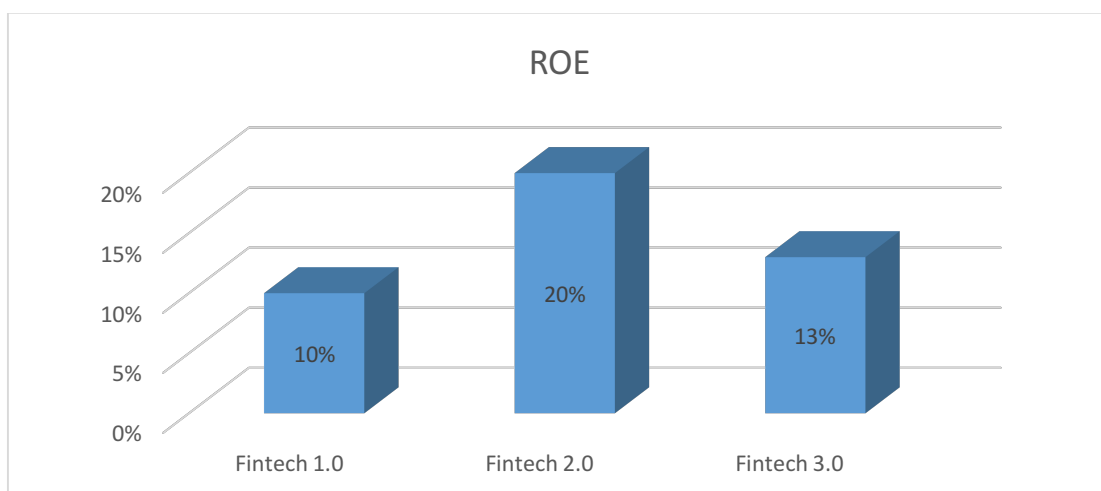
KPMG consultants 2017, remark that it is important to mention that some areas of Fintech's market are saturated, such as, payments and lending. For example, payments and lending are losing power in North America. The reason is that these sectors are the most used by the population because of the facilities that they give. This fact generates that the part of Fintech related to these become mature in the market. As a consequence, many investors are focusing their efforts on improving business models of companies instead of looking for new opportunities. On the other hand, there are other areas of the sector that are increasing and in high development, such as, insurance (insurtech) or the artificial intelligence (AI).

One of them is *Insurtech*, which is the relation between insurance and technology. It can be defined as the transformation of traditional insurers adapted to the new technological environment in its dimension. As well as start-ups are offering new digital products trying to adding value to existing companies. The other one is the artificial technology which has an important impact in Fintech sector. It is characterized for use machines to realise different tasks.

3.4. PHASES OF FINANCIAL TECHNOLOGY

Our study departs from the study undertaken by Arner *et al.* (2016), which shows the Fintech evolution in recent years. Three different periods can be distinguished. Also it will be analysed the evolution of the Return Equity, which measures the profitability of the sector in relation to the book value of shareholder's equity, in other words, explain how the company invests its assets to generate profits.

Figure 8: ROE EVOLUTION



Source: Own elaboration from Minsait by Indra (2016).

The first one is **Fintech 1.0** and was between 1866 and 1967. After the World War I improvements in technology were applied to the banking system. Before that moment the vast majority of the process was done by hand and the efficiency needed to become better. For that reason, the technology utilized was used to give support to the mainframe. In addition, the capital requirements were lower than today and the profitability of the business was around ROE 10%.

The next one was the era of digitalisation of traditional financial services, known as **Fintech 2.0**. It was between 1967 and 2008 and it is important to highlight the necessity of interconnecting domestic payments systems. It was characterized because the technology began to be known as a synonym of efficiency. Everything related to documentary management, CRM and communications started to be automatized. There are some important facts during this period. After the “Black Monday” of 1987, it was shown that the financial and technological markets were interconnected. The solution was introducing circuit breakers to check the speed of price movements and gave securities regulators to create mechanisms to obtain cooperation. In the 1990s, the computer risks appeared when the long-term capital management collapsed after the Russian and Asian crises of 1997 and 1998. The next one was in 1995 when Wells Fargo began offering online customer services. As a result, in 2001, eight US banks had around one million online clients. From that moment on financial institutions knew that exist new types of risks, like credit risks. To solve this problem, institutions started to introduce a new regulation in the sector. But, it is also important to mention that profitability increased and banks took advantage of the scale economies, raising its ROE to 20%.

From 2008 until today, the **Fintech 3.0** has emerged which progress has been started in the development countries. After the economic crisis, regulation increased in the banks because its reputation went down and lending platforms competed out a clear regulatory framework. The most important thing about this period is that the financial services are provided by start-ups, the use of smartphones and the sophistication of application programming interfaces. It is also characteristic the speed at which everything happens. It is important to mention that the ROE is between 10 and 15 percent.

Finally, the expectations for the future are related to having a technology transformational such as Blockchain. It is in an experimental progress and is starting to

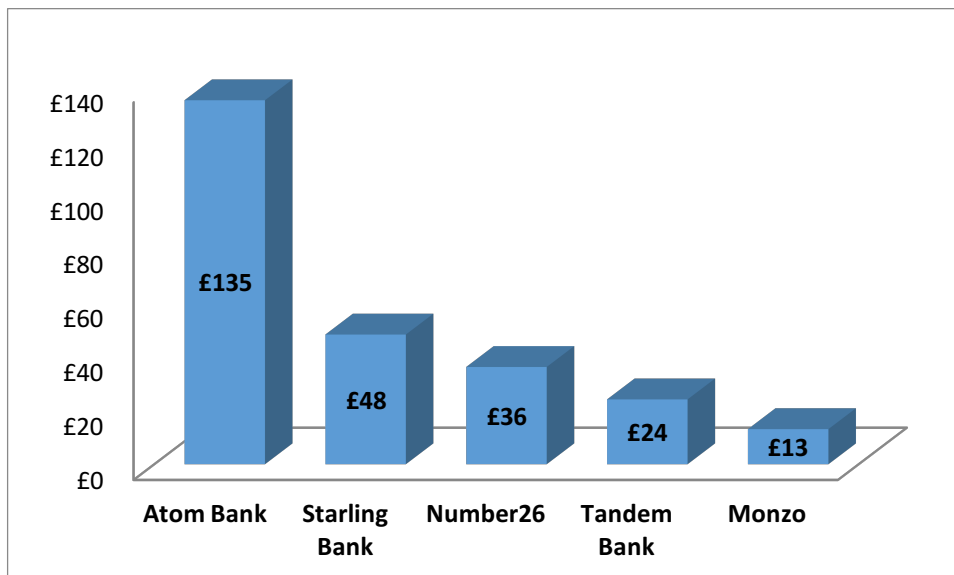
change the way in which it was understood and registered the transactions and affected the costs of the business. Companies that will survive in the future and increase more its revenues are those in which services will have added value in technology, have a good and emotional relation with the customers and have data power. But, in the middle term it is expected the Fintech Bubble. The principal reason is related to the big size that the Fintech sector is acquiring in the economy. In 2016, the amount of firms was around 12.000 and its accumulated investment is around 24 bn US Dollars.

3.5. FINTECH IN BANKING SECTOR

As was mentioned before, banking is one of the most affected sectors because of the competitively so they need to reduce its costs. In this section is going to be analysing the banks that are applying more Fintech.

According to KPMG consulters (2016) the major bank investments produced in that year were for different banking groups. The influence of Banco Santander, Citigroup, Goldman Sach, ING Group, BBVA or HSBC is considerable.

Figure 9: TOTAL FUNDING RAISED BY MAJOR EUROPEAN DIGITAL-ONLY BANKS



Source: Own elaboration from BI Intelligence (2016).

Concerning the evolution of the amount raised by the main European digital only-banks in 2016, it is important to remark the differences in the amounts. Figure 9 shows the

advantage that Atom Bank, Starling Bank, Number 26, Tandem Bank and Monzo have in comparison to the rest of the banks in the world.

To understand the influence that United Kingdom has on the Fintech sector it is necessary mention that all banks of the graph except Number 26 are from there. The last one has German origin. This explains the agreement that the British country has with the expansion and evolution of the Fintech sector and why 50% of the Fintech investments are done in that country.

In addition, according to Blurred Lines (2016) the trends for the future to take into account are related to the level of importance and the likelihood to respond to these trends. The most important are Asset & wealth management, Banking, Fund transfer and payments and insurance. Between the main objectives in banking are simplify operations to improve customer experience, such as digital delivery and offer safety to customers. Is important also, the creation of *API platforms* to try to arrive to the major number of investors and to increase they interest in technology and its development and create a global spotlight to control leverage. But we need have into account that in that sector some segments of the population prefers human interactions, such as, elderly people whose level of digitization is currently limited.

These platforms are characterized by using technology and data to create firms. Leaders are among others Amazon, Facebook or Twitter. The main objective of the firms is to reduce costs and have all the opportunities that are present in the media through the Internet. For this reason, banks are using this type of platforms, because this means more competition in the market.

4. IMPORTANCE OF LEGAL FRAMEWORK

In some senses, regulation is important because its effects are valuable in the economy. In addition, it is relevant that governments need to have control of the practices of firms in their countries. But the problem is that the development of the sector is faster so the institutions have problems to create a regulation. First of all is necessary highlight the effects of the technology in the market and study its applicability. According to Block *et al.* (2016), technology favours the emergence of new players in the market, such as, crowdfunding platforms or venture capital. Its existence is possible due to Internet and its communication facilities. Another example

of the application of technology is the creation of Bitcoin as a virtual currency. Although technologies create new assets and reduce costs of firms it is important to mention that risks can increase as a result of security for example.

As Arner (2016) and Kalmykova and Ryabova (2016) explains, regulators need to decide what to regulate and understand the technology's applicability. Another difficulty is the fast-growing of the sector which create difficulties to control the situation and affect directly to regulation and different size of the firms. For that reason, regulation needs to be flexible to be capable to adapt to the different firm structures fact that affect directly to the expectations of Fintech sector.

In addition, Chang *et al.* (2016) put emphasis on the *Regulatory Focus Theory* which is focus on explain the decision process of consumers and its goals. Besides this, another focal point of the theory is analysing the relation between the purchase goal and the motivation of the person.

But it is important have into account that regulation is a global issue and all countries need work together to create rules in the market. Beside this, many countries are creating institutions to control the market. For example, United Kingdom has the Financial Conduct Authority (FCA) and the United States the Securities and Exchange Commission (SEC). The reason is that those countries have two of the Fintech capitals in the world.

5. HOW FINTECH IS SHAPING FINANCIAL SERVICES

As Jim Marous said, "The biggest challenge for banking in this age of disruption will be to break free from the patterns and comfort level of the past and accept the realities of the new digital marketplace - it is the non-banks that are setting the expectations for the new generation of Banking Consumers".

Related to this statement, a report by Minsait by Indra (2016), intends to explain the challenges of the Traditional Banking System after the Economic Crisis. Nowadays Fintech is not bringing new products to the banking industry, what is doing is redesigning the obsolete banking process using technology. In addition, is important to mention that there are important implications for Fintech's impact on the traditional banking sector, such as, the improvement of the services, reducing prices or the reduction of the amount of revenue in some areas selected by cost effectiveness or the

use of Blockchain. Nowadays, achieving the status and consolidating a position among the main global brands in banking is not a synonymous of success. The challenges of the banking system are handled by management teams. The problem is that leadership is unstable and depends on the health of the economy.

It is also important to mention that the behaviour of customers has changed in recent years and the use of the Internet has a significant impact, due to the amount of information available. Customers can check all the available alternatives and choose the best option using their Smartphone or Tablet. This fact generates uncertainty and affects to the traditional banking system. In order to verify what was described before, Ryabova (2015) and Románova and Kudinska (2016) explains that today people can obtain credits thanks to the special services provides by the Internet from other users without the support of banks, such as, obtaining information about their expenses in credit cards or pay by credit card using mobile apps.

This type of services offers, done that banks are investing big amounts in Fintech and increase the standardization of their functions. In addition, they are trying to understand the different attitudes of their customers and to study the facts that most influence their opinions. The reason is that the transformation to the 3.0 banking and the new role of relation with the client is still not resolved. The solution will arrive when banks find a new role in society. This has relation to the ethical banks. Benedikter (2011) defines *Social Banks* as “banks with conscience”. Also, according to Goyal and Joshi (2011), this type of banking is focused on investing in the community, offering opportunities to the disadvantaged population and contributing to the conservation of the environment and society. In addition, they promote investing money in projects whose objective is to create a better society, leaving aside the profits.

In short term, the traditional banking system has challenges that it must resolve to compete in the economy as before the Economic Crisis. The most important are the challenge of the traditional models of business, an increase of the regulatory policies, loss of confidence by part of the society, the development of technology and changes in the market structure.

- Challenge of the traditional models of business

The weak macroeconomic growth of the mature economies has created a period of low interest rates which is expected to continue in the medium term.

Related to the low interest rate, it is important to mention that they have also favoured the financing of Fintech companies. Another consequence is that has eroded the Intermediation Margin of the entire banking sector affecting its results. Additionally, the transfer of the financial crisis to the productive economy established the ratio of default and provisions, which did not return to pre-crisis levels.

Furthermore, the development of Shadow Banking has consolidated some technological giants and favours to new technology companies, which without having a special knowledge of banking, does understand better how to act to eliminate what customers do not like about the traditional banking system services. This type of companies tries to gain share market in the most profitable areas of the traditional banking business and reject those in which there is much regulation.

- Increase of the regulatory policies

As a result of the GFC of 2007, it was discovered that for years had existed a weakness in the functioning of the banking system. For this reason, different Institutions around the world carried out new measures in regulation.

This regulation directly affects to profitability. On the one hand, these new measures require a deleveraging which means undermining the profitability of the existing sources and limiting the possibilities of growth to the economy. On the other hand, as a consequence, the operative costs increase, principally those related to technology and human resources.

- Loss of trust by society

The behaviour of banks years before the Economic Crisis had consequences on consumer confidence nowadays, and these repercussions affected all the countries in the Euro Zone. The most relevant is the increase in debt and the political measures that the European Central Bank adopted to re-establish the balance in the economy with the application of contractive policies.

After the rescue of the economy, many customers decided to access to other ways of financing in which the traditional banks were not involved. After that

moment, it increased the use of crowdfunding or venture capital within others, to achieve financing and the number of Fintech Firms in the world.

- Development of technology

To increase their popularity, major banks in development economies decided to apply technology and new behaviours to attract their customers again. One of the most representative examples is the introduction of Blockchain in 2014. This is a platform for digital assets which uses technology to offer their customers a better financial system having the objective of create value of the financial services offered due to the use of the Internet. The objective of this platform is to create an open and accessible market and to build new financial services in banking industry without the costs of intermediaries reducing risks. In addition, other of the main objectives is the application of Blockchain to the whole industry, trying to reconfigure the way in which business models work.

Figure 10: TASKS REALIZED BY BLOCKCHAIN



Source: Blockchain (2016).

To achieve its objective, Blockchain created *R3*, which is an innovation firm which is focus on empowering the next generation of global financial services technology. The idea is creating a future state in which exist a unification by one ledger in which transactions are validated in near-real time and use cryptographically in auditing. To achieve the objectives mention, this platform works with bitcoin, a virtual coin. In relation to the information given, Blockchain allows to its customers to settle in complex international transactions in ten minutes with a cost of 0.05€.

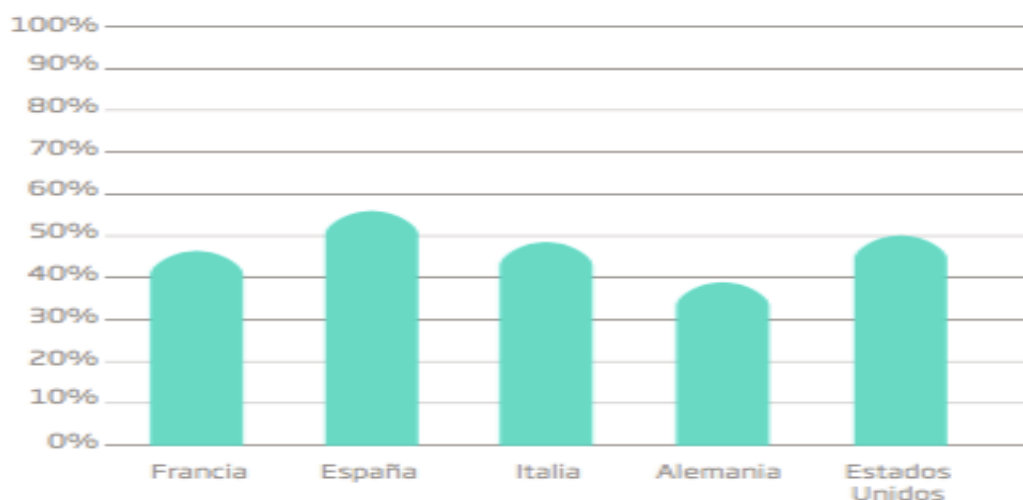
Being conscious of the advantages of this type of technology, in 2015, Goldman Sachs, JPMorgan, Credit Suisse, Barclays, Commonwealth Bank of Australia, State

Street, RBS, BBVA and UBS agreed to develop a common normative to promote the diffusion of their financial services.

- Changes in the market structure

The structure of the banking market is gathered in recent years. To understand the breadth of the situation, we will see two examples: The five most important banks in the United States contribute with the 50% of the total banking assets and in the United Kingdom, the four main banks concentrate the 70% of the Personal Current Accounts and the 85% of the Business Current Accounts. Related to the concentration of the sector it is important to mention that the banking sector is characterized by the existence of entry barriers and by offering homogeneous products and services which can be interchangeable with each other.

Figure 11: MARKET SHARE OF THE 5 PRINCIPLES BANKS



Source: ECB Structural Financial Indicators (2014).

Figure 11, shows the market share of France, Spain, Italy, Germany and United States, showing the percentage of total assets of the banking sector. The objective is to demonstrate the concentration and to show that the Economic Crisis does not affect this consolidation.

Also, according to Véron (2007), the European Banking sector is fragmented, but the financial services represent almost the 36% of the aggregate value of companies in the FT global 500 ranking of the world's largest listed corporations. Figure 12, samples the relative parochialism of the European banking industry, using the average in internationalisation rate and the average in Europeanisation rate to see the differences.

The sectors analysed are the life sciences, consumer products and services, oil, gas and mining, and finally banking. As it is shown, the banking sector is more concentrated on its home market than any other industries.

Figure 12: FRAGMENTATION OF THE BANKING SECTOR

<i>Sectorial breakdown of Europe's top 100 listed companies</i>	<i>Average in internationalisation rate *</i>	<i>Average in Europeanisation rate**</i>
<i>Life sciences</i>	91%	84%
<i>Consumer products and services</i>	84%	74%
<i>Oil, gas and mining</i>	70%	57%
<i>Banking</i>	44%	27%

*Internalisation rate: Sales outside the headquarters zone/total sales.

** Europeanisation rate: European sales outside the headquarters zone/total European sales.

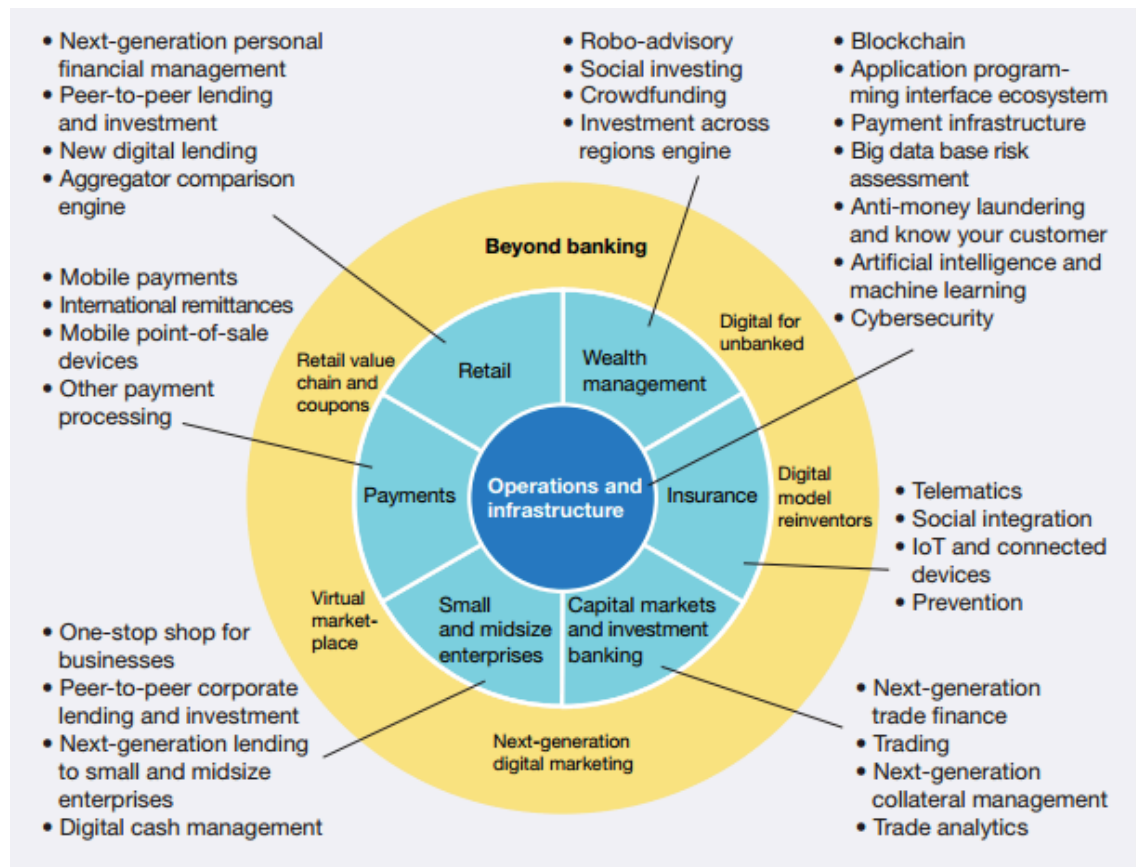
Source: Own elaboration based on Farewell National Champions, Bruegel Policy (2006)

According to Románova and Kudinska (2016), traditional banking Fintech banking represents an opportunity because its development means an expansion of the sector due to many people are qualified to give more efficient ideas to the business by providing more flexibility, producing better functionality in some areas or adding new services to the activity. But it is important to mention that for banks there are risks related to the development of Financial and Fintech innovations because are exposed to the macro- and micro level, to the amount of competitors because are increasing the amount of non-financial institutions which are operating in the sector and affect to the public image and to the final revenues of the big companies.

6. EMERGING AND FUTURE TRENDS AND CHALLENGES IN THE FINTECH

The main objective of this section is to give a general idea of the expectations for the future trends of Fintech. According to Hackereath, Fintech 4.0. will arrive sooner than expected. This transformation will be related to macroeconomic factors trying to achieve better market conditions, creating a new regulation and reach the consumer quickly than before trying to satisfy its demand.

Figure 13: KEY FINTECH TRENDS



Source: McKinsey&Company (2016).

As Figure 13 shows, the future Fintech evolution is related to payments and wealth management, insurance, capital markets and investment banking, small and midsize enterprises and retail. Although some of the mentioned areas are already under development, Fintech has the challenge of being a pioneer in technology, creating ever more safety and efficiency. To achieve these objectives, Fintech will encourage the development of Blockchain trying to increase its market share.

All these modernizations will affect directly to two different sectors: Banking and entrepreneurship.

It is expected that banks would be able to grow around 80-90% the number of products and services related to technology. These innovations will provide modernization to the sector and will mitigate the scarcity of technological talent. On the other hand, it is expected that the amount invested in entrepreneurship increase as a result of modernization and reduction in costs. Also, in the future the impact of the Internet will be higher.

Also, as was mentioned before the companies that will survive in the future will be those that will have added value in technology, have a good and emotional relation with the customers and have data power. To improve, the objectives in banking are simplify operations to improve customer experience, such as digital delivery and offer safety to customers.

7. FINAL DISCUSSION AND CONCLUSIONS

As was mentioned before the main objective of this work is analysing the evolution of the Fintech sector, the reasons of development and its growth in recent years, its importance for the economy, how affect to the traditional banking system, difficulties in regulation and the future trends for the sector to achieve conclusions of how the economy is affected. Another of the purposes is related to show that nowadays managers and firms do not depend only from banks due to the different financing alternatives, such as, crowdfunding, venture capital or business angels. Between the reasons of its expansion was the behaviour of banks during the pre-crisis years, development of technology and accessibility to Internet. Also, the Global Financial Crisis has negatively affected the reputation of the traditional banking system, a fact that generated the expansion of new sources of financing.

In addition, Fintech evolution favours the expansion and globalization of the economy affecting directly to the traditional business model. This contributes to the creation of start-ups and to increase the amount invested in entrepreneurship. This quantity increases exponentially around the world from 2009 to 2016 year in which existed lot of uncertainty in the economy. Some of the most important facts that produce it are Brexit and the election of Trump as a president of United States.

As a result of the quantity invested, in recent years has increased the amount of Fintech firms. This new technological types of companies, such as, GAFAS, Start-ups or Unicorns, contribute to the expansion of the sector and generate technological innovations appreciated by the population. Also, exists different mechanisms to obtain funds to create new firms. Between others, the most relevant are venture capital, business angels or crowdfunding. The most important areas of investment are finance, investment, internal financial operations, risk, management, payment and infrastructure. Also, the expansion of the sector is a result of the bad management of banks and the lack of credit. For that reasons the number of entrepreneur's increase and the sector started its expansion during the financial crisis.

For that reason, one of the most affected sectors is banking. The principal reasons were related to the lack of credit during the Crisis and the conditions in which its competitors operated. Also the development of technology and accessibility to Internet do not favor to the traditional banking system and they need to invest to be more efficient and competitive in the market. For that reason, to maintain their position, financial institutions must make changes in the way they understand their business model. To summary, digitalization is an opportunity to be efficient doing business activities. Between the most important advantages are reducing costs, better known of customer necessities and add value to the sector.

Besides this, it is important to mention the future trends. It is expected the creation of a new phase: Fintech 4.0. which will promote principally a major development of technology, safety and efficacy. The most important areas are related to payments, wealth management, insurance, capital markets, investment banking, small and midsize enterprises and retail. Also, banks will achieve better technological conditions and will promote more products using the Internet.

Finally, I want to make a personal assessment of the learning experience. First of all, I want express how much I have reflected during the elaboration of this work in relation to the importance of Fintech in the economy. The realization, helped me to understand the impact of this sector in the traditional business models. In addition, as a student of Finance and Accounting and probably future enterprising, this work helped me to know all the different alternatives of financing and how affects these evolutions to the traditional banking system. But, I need to mention that sometimes the actuality of the topic was an inconvenient because I have problems to find some information related to investment.

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